

INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.

1. This examination consists of 9 questions.
2. Answer ALL the questions in the space provided.
3. Clearly show ALL calculations, diagrams, graphs, etc. which you have used in determining your answers.
4. Answers only will NOT necessarily be awarded full marks.
5. You may use an approved scientific calculator (non-programmable and non-graphical), unless stated otherwise.
6. If necessary, round off answers correct to TWO decimal places, unless stated otherwise.
7. Diagrams are NOT necessarily drawn to scale.
8. Leave all exponents in positive exponential form.

Question 1

Choose the correct answer by placing the correct letter in the open column on the right

1.	The prime factors of 14 are the following: A) 1 and 7 B) 1;2 and 7 C) 2 and 7 D) 1;2;7 and 14	
2.	Which of the following is a square and cubic number ? A) 1 B) 4 C) 9 D) 16	
3.	How many fifths are there in $1\frac{2}{5}$? A) 2 B) 3 C) 6 D) 7	
4.	$w \times w \times w \times w \times w$ can be written as: A) $5w$ B) $w \times 5$ C) 5^w D) w^5	
5.	$4 - (-3) = \dots$ A) $4 + 3$ B) $3 - 4$ C) $4 - 3$ D) 4×-3	
6.	The simplified form of $5(x - 3)$ is A) $5x - 8$ B) $15x + 8$ C) $5x - 15$ D) $5x - 3$	
7.	$\sqrt[3]{125} \text{ ____ } \sqrt{25}$ A) = B) < C) \leq D) >	
8.	The additive inverse of -7 is: A) 7 B) $\frac{1}{7}$ C) 0 D) 1	
9.	In a class of learners, $\frac{3}{5}$ are girls. Of the girls, $\frac{2}{3}$ play netball. What fraction of the class plays netball? A) $\frac{2}{5}$ B) $\frac{3}{4}$ C) $\frac{5}{6}$ D) $\frac{9}{10}$	
10.	$(-3x^3)^3 = \dots$ A) $-27x^{27}$ B) $-9x^9$ C) $-9x^{27}$ D) $-27x^9$	
11.	$3a + 2a + 5a = \dots$ A) $10a^3$ B) $30a$ C) $10a$ D) $30a^3$	

12.	The highest common factor of 12 and 18 is: A) 2 B) 3 C) 6 D) 12	
13.	Which of the following is not a counting number? A) $-2 - (-3)$ B) $2 - (-3)$ C) $-3 - (-2)$ D) $3 - (-2)$	
14.	The lowest common multiple of $2^2 \times 3 \times 5$ and $2^2 \times 3^2$ is: A) $2^2 \times 3$ B) 36 C) $2 \times 3 \times 5$ D) 180	
15.	The product of 6 and d , decreased by a , can be expressed as: A) $6 + d - a$ B) $6d - a$ C) $6(d - a)$ D) $6 + (d - a)$	

[15]

Question 2

Indicate whether the following statements are true (T) or false (F):

- 2.1 If a number is an integer, it is also a whole number. _____
- 2.2 The square root of natural numbers are not all natural numbers. _____
- 2.3 Natural numbers can be shown in a set as $N = \{1 ; 2 ; 3 ; 4 ; \dots\}$ _____
- 2.4 The first five prime numbers are $2 ; 3 ; 5 ; 7 ; 11$ _____
- 2.5 $\frac{2}{0}$ is undefined because the fraction is equal to 0. _____

[5]

Question 33.1 Arrange the following numbers in **ascending order**:

76 105	67 051	76 501	67 510	76 015	67 150
--------	--------	--------	--------	--------	--------

--	--	--	--	--	--

(2)

3.2 Round the following to **2 decimal places** :

- a) 58,887 _____ b) 4,044 _____
- c) 6,709 _____ d) 99,999 _____

(4)

3.3 Complete the table:

Decimal	Fraction (in simplest form)	Percentage
0,65		
	$\frac{2}{5}$	
		76%

(6)

3.4 Complete the equivalent fractions for the following:

a) $\frac{3}{9} = \frac{\quad}{18}$

b) $2\frac{2}{3} = \frac{\quad}{3}$

(2)

3.5 Fill in the **fractions** to make the equations true:

a) $\frac{1}{3} + \square = 1$

b) $\frac{1}{3} \times \square = 1$

(4)

3.6 Emma spends $\frac{1}{8}$ of her pocket money on a movie, $\frac{2}{5}$ on take-aways and $\frac{1}{5}$ on a gift for her mom on Mother's Day. What fraction of her pocket money is left?

(3)

3.7

ABC Plumbing charges R495 per hour, but it does NOT include 15% VAT.	XYZ Plumbing charges R550 per hour which includes 15% VAT.
---	---

a) Calculate the **15% VAT amount** that **ABC Plumbing** needs to add to their price.

(2)

b) Calculate ABC Plumbing's price with VAT. Now decide which plumber is the cheapest?

(1)

3.8 Andile viewed $\frac{3}{8}$ of his favourite television show.

a) If the show is 48 minutes long, how many minutes did he watch?

_____ (2)

b) What percentage of the show still needs to be watched?

_____ (2)

[28]

Question 4

4.1 Write the ratios in simplest form :

a) 100 : 40

b) 40kg : 480g

(2)

(2)

4.2 South Africa's leading brand of squash and generations of South Africans have grown up drinking **Oros**. The recommended dilution rate is 1 to 3.



(a) If you have been told to mix a jug of Oros and there is 250ml of Oros concentrate left, how much water should you add?

_____ (2)

(b) How many litres should the jug hold? _____ (1)

4.3 Calculate the distance that Erin walked on Monday and Tuesday.

(a) On Monday she walked for 3 hours at a speed of 3,5km per hour.

_____ (2)

(b) On Tuesday she walked for 45 minutes at a speed of 4 km per hour.

_____ (2)

[11]

Question 7

Simplify fully:

a) $x \cdot x(x)$

_____ (1)

b) $p + p$

_____ (1)

c) $3y + 6y - 7y$

_____ (1)

d) $5c + 7d + 3c - 2d$

_____ (2)

e) $13x^2y - 2yx^2 + 3xy^2$

_____ (2)

f) $(7w^2)(8w^3)$

_____ (2)

g) $\frac{24a^5b^7}{12a^3b^2}$

_____ (3)

h) $(-42a^2b^6) \div (7ab^2)$

_____ (3)

i) $2(3x - 4y) + 5$

_____ (3)

j) $(4a^3b^4)^3$

_____ (3)

k) $a(3a + b) - 2a(4a - 3b)$

l) $\frac{6a^4 - 15a^2}{3a^2}$

(3)

(3)

m) $\sqrt{\frac{144x^4}{25y^6}}$

(2)

n) $\sqrt{\sqrt{16x^8}}$

(2)

[31]

Question 8

8.1 If $a=2$ and $b=-1$, what is the value of

a) $2a - 10$

b) $5ab$

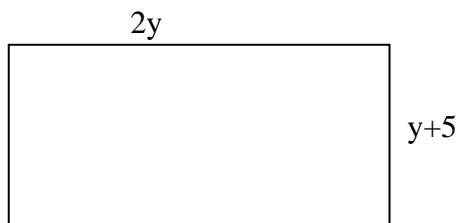
_____ (2)

_____ (2)

c) $3a + 2b$

 _____ (3)

8.2 Express the **area** of the following rectangle **in terms of y** in its simplest form. (3)



[10]

Question 9

Shaun was asked to calculate the following without using a calculator: $-(-2)^3 - 2(-3) - 2$

Below is Shaun's attempt at solving the problem:

$(2)^3 - 2(-3) - 2$	Line 1
$= 6 + 6 - 2$	Line 2
$= 6 - 12$	Line 3
$= 4$	Line 4

Explain what Shaun did incorrectly in each of the lines (based on his previous line's answer):

Line 1: _____

Line 2: _____

Line 3: _____

Line 4: _____

[4]

TOTAL: 120